

ABSTRACT OF THE DISCLOSURE

An apparatus and method for surface finishing a workpiece is disclosed as including a workpiece supporting mechanism supporting a workpiece having a target shaped periphery with a given width to be surface finished and a tool holder holding a surface finish tool in abutting contact with the target shaped periphery of the workpiece. A pressure applying mechanism is operative to apply a pressure force to the surface finish tool through the tool holder to cause the surface finish tool to be held in pressured contact with the target shaped periphery, with the pressure force exhibiting a given distribution pattern depending upon an axial direction of the workpiece. A drive mechanism rotates the workpiece to allow the surface finish tool to surface finish the target shaped periphery into a given geometrical profile, variably contoured along an axis of the workpiece depending on the given pressure distribution pattern.